

**Review of Completed Project,
Kansas City Levees, Missouri and Kansas**

**Draft
Interim Feasibility Report and
Environmental Impact Statement**

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Draft Interim Feasibility Report Document Organization

- **Feasibility Report**
- **EIS** (*includes*)
 - **Fish and Wildlife Coordination Documents**
 - **Section 404/401 Documentations**
 - **Public Involvement, Comments and Responses**
 - **Other Related Information**

APPENDICES

(Appendices available for Internet download at
www.nwk.usace.army.mil/projects/7levees)

VOLUMES 1, 2, 3, and 4

- **Appendix A: Engineering** (*includes*)
 - **Hydraulics and Hydrology**
 - **Structural**
 - **Geotechnical**
 - **Civil**
 - **Cost Engineering (cost estimates)**
 - **Other**

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- **Appendix D: Hazardous and Toxic Waste (HTRW)**

Syllabus

The existing Kansas Citys, Missouri and Kansas, Local Flood Protection Project provides local flood protection for the metropolitan areas of Kansas City, Missouri and Kansas City, Kansas. The Kansas Citys project is a unit of the Missouri River basin comprehensive plan authorized by the 1936, 1944, 1946, and 1951 Flood Control Acts. A modification to raise some of the levee units comprising the Kansas Citys Project was authorized in 1962.

The Kansas Citys project is authorized as seven levee units. This project extends over the lowest 10 miles of the Kansas River (at its confluence with the Missouri River) and a 20 mile reach on the Missouri River flanking the mouth of the Kansas River. These levees act in concert to protect an area of dense industrial and commercial development and minor areas of farmland all together covering about 32 square miles. Five of the seven units protect residential development. Communities within the study area include Kansas City, Missouri; North Kansas City, Missouri; Randolph, Missouri; Birmingham, Missouri; and Kansas City, Kansas.

Although the project operates as a system, its components are located on opposite banks of two major rivers involving two states and various political jurisdictions. Thus, the seven levee units are operated and maintained independently by five non-federal sponsors. Most of the Federally constructed works date to the 1940's and 1950's. Significant Federal modifications to several units were accomplished in the 1970's. While this metropolitan flood damage reduction system is designated as a Federal project, it has long been turned over to the sponsors for operation and maintenance. The Corps of Engineers continues to conduct regular inspections and technical review of significant modifications to the system.

The entire metropolitan system of seven flood protection levee units withstood the Missouri River Flood of 1993, but some elements of the system were nearly overtopped or experienced underseepage issues. As a result, there was a concern that the levees may provide less than the design level of protection. Section 216 of the 1970 Flood Control Act provides the authority to reexamine a completed civil works project.

This Interim Feasibility Report addresses recommended performance improvements in four of the levee units (the Argentine, North Kansas City, Fairfax-Jersey Creek, and East Bottoms units). These four units provide flood protection for 11,700 residents and 68,750 local employees. Feasibility examination of the Birmingham Levee unit has found the unit adequate. The remaining two levee units (Armourdale and Central Industrial District) will be addressed in the Final Feasibility Report scheduled for publishing in late 2008. The study included a continual and extensive independent technical review.

This report focuses on identifying, describing and offering solutions to flood performance weaknesses in four of the levee units by addressing the need for improved underseepage control and reducing the risk of overtopping and structural failure. Generally these weaknesses impair the reliability of the individual unit where they are found. To address the study objective of ensuring reliability across the levee system consistent with the intent of the original authorizations, the study recommends the following improvements:

- The Argentine Unit must be raised 4 to 6 feet, along with major improvements to the existing line of protection and associated structures including three pump stations, floodwalls, stoplog gaps, drainage structures and related features.
- The East Bottoms, Fairfax-Jersey Creek, and North Kansas City Units can be strengthened at their present elevations to achieve an acceptable reliability. Strengthening will include specific structural and underseepage control measures as described herein. These measures include:
 - installing a new system of pressure relief wells at the East Bottoms Unit;
 - adding piles and buttresses to strengthen an existing floodwall and reconstructing a sheetpile wall at the Fairfax-Jersey Creek Unit, and
 - establishing a new pressure relief well system and pump plant, and a new buried seepage collector system at two locations within the North Kansas City Unit.

In addition the study recommends that upcoming efforts directed at a Final Feasibility Report will continue with analysis and recommendations for the Armourdale and Central Industrial District units respective to a lower Kansas River system solution and other minor improvements in various units.

The Recommended Plan for the four units addressed in this Interim Report is the National Economic Development (NED) plan. The recommendations for the Final Feasibility Report, addressing the remaining units, will not impact the NED status of the Interim recommendations. Individually and collectively the recommendations are economically justified. Separable sites and features are incrementally justified. The report categorizes the various levee system problems and the related solutions as new work, reconstruction (a subcategory of new work), or design/construction deficiency remedies. Each category has its own authorization and budget implications. Remedies addressing deficiencies would be implemented under the existing project authorization. Measures to address new construction (associated with changed conditions) and reconstruction would require new authorization and would be identified differently in the budget process.

The NED plan has few direct or cumulative environmental impacts largely because it sustains the existing levee project rather than encumbering additional resources for a “new” flood protection project. Furthermore, because the authorized project footprint is essentially unchanged, there are relatively no other long-term adverse social effects. There are no takings of threatened or endangered species in the Recommended Plan. Very minor mitigation is required to compensate for the loss of less than 1 acre of wetland. Hazardous waste and CERCLA issues are addressed within the recommended solutions. The recommended levee raise for the Argentine unit would result in minor induced damages during extremely rare events. However, there is no real estate taking.

The total implementation cost of these measures is \$75,546,000 shared with the four non-Federal levee sponsors. The total annual NED benefits are \$41,404,000; annual NED costs are \$5,086,000 and the net NED benefits are \$36,318,000. The resultant BCR is 8.1 to 1. NER benefits are preservation of 185 acres of riparian habitat with the annual NER costs of \$90,000. The sponsors would receive credit for any necessary lands, easements, rights-of-way, relocations or disposal area (LERRD). The aggregate Federal share of the plan is \$49,105,000 or generally 65% (percent) of the total cost and the sponsor share is \$26,441,000 or generally 35%. The sponsors will take ownership of project improvements and assume all operation, maintenance, repair and replacement costs of the completed works.

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